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DEVELOPMENT OF RENEWABLE ENERGY POLICY IN LATVIA

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Abstract. The research analyses the role and results of production of renewable energy sources (RES) in Latvia. The government has promoted the use of RES by biomass cogeneration and power plants as well as biogas cogeneration plants by means of various support policy instruments. Consequently, the electricity output from RES comprised 51 % of the total electricity output in 2014 and, on average, 48 % in the period 2011-2014. Although the support policy for RES use fostered the development of this industry in Latvia, a number of restrictions were imposed in recent years – a 10 % subsidised electricity tax (SET) rate was applied to taxable income from electricity production from RES in 2014 and a decision was made in 2016 to differentiate the mandatory procurement component (MPC) in 2018. The research aim is to analyse trends in the development of RES in Latvia. To achieve the aim, the following specific tasks were set: 1) to give insight into the situation in the field of RES in Latvia, placing a particular focus on electricity generated from the RES; 2) to analyse the most important RES policy developments in Latvia; 3) to assess the RES support policy implementation results for electricity generation from the RES and to outline an expected RES policy in the EU beyond 2020. The research has found that the greatest threats to RES use are an imprudent policy of the government of Latvia, which could create incomprehension among the public and an unsTable and unpredicTable business environment. However, EU policy softening regarding RES can influence the EU's leading role in the field of the RES. For this reason, the positive effects from RES use – energy efficiency, environmental protection and regional development – could decrease in the future.

Keywords: renewable energy source, electrical energy, support system, policy.

JEL code: Q28, Q42.

Introduction

Renewable energy is a kind of energy that does not depend on resource deposits on the Earth. No non-renewable natural resources are depleted and no harm is done to the environment if generating this kind of energy. Renewable energy is produced from renewable energy sources that are impossible to deplete, e.g. solar, wind, hydro- and wave power and geothermal energy, as well as biomass and biogas that are produced from, for example, waste or manure. Renewable energy sources are an alternative to fossil fuel (European Parliament, 2016).

In the last 20 years, concerns about climate change, environmental sustainability and security have increased in the world. Despite the fact that renewable energy is currently expensive, the use of it minimises emissions that are produced by the conventional energy sector, thereby making a negative impact on the environment (Wu Q., Zhou J., Liu S., et al., 2016). An agreement has been reached in the world to reduce greenhouse gas emissions by 80-90 % until 2050 (Pfenninger S., Keirstead J., 2015). In addition to the above-mentioned, it is considered how to replace fossil fuel, as its deposits are being depleted in the world (Lin J.H., Wu J.H., Lin H.J., 2016). Accordingly, a decision has been made in the EU and elsewhere in the world to reform the energy sector and increase the proportion of RES in the total consumption of energy (Sahovic N., Pereira da Silva, 2016). In 2012 in the world, renewable energy accounted for approximately 19 % in the total final energy consumption; most of the energy was generated by means of modern technologies, yet a significant share was comprised by conventional energy from biomass. In the last decade, the generation of solar and wind energy sharply increased in the world (by 42 % and 27 %, respectively). In 2012, the global installed renewable energy capacity was 1440 gigawatts (GW), of which 21.7 % or 312 GW were installed in the EU Member States. The installed electric capacity of RES power plants in the EU increased from 170 GW in 2005 to 312 GW in 2012 (an increase of 84 %) (Scarlat N., Dellemand J.F. et al., 2015). According to expert forecasts, RES will contribute to 50 % of the

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global energy consumption in 2040 (Sari A., Akkaya M., 2015).

Latvia has introduced a national support mechanism to promote renewable energy use – mandatory procurement and guaranteed payments for the installed electric capacity. In Latvia, costs arising from supporting electricity produced from RES or in high efficiency cogeneration are covered by all final electricity consumers proportionally to their electricity consumption, as the mandatory procurement component (MPC) is integrated in the price on electricity (Energetikas attistibas pamatnostadnes..., 2016). For this reason, a part of the public is dissatisfied with the fact that RES producers are too generously supported, which negatively influences households and businesses in Latvia. The present research focuses on the results of electricity production from RES, as this industry is important for Latvia. The *research aim* is to analyse trends in the development of RES in Latvia. To achieve the aim, the following *specific tasks* were set: *1) to give insight into the situation in the field of RES in Latvia, placing a particular focus on electricity generated from the RES*; 2) to analyse the most important RES policy developments in Latvia; 3) to assess the RES support policy implementation results for electricity generation from the RES and to outline an expected RES policy in the EU beyond 2020.

Research hypothesis: recent year changes in the RES policy could hinder the development of the RES in Latvia.

Research methods employed: analysis and synthesis, logical construction, monographic, statistical analysis.

Research results and discussion

1. RES production in Latvia

RES production requires large initial investments (to establish a facility), while its variable and facility maintenance costs are relatively low. According to the research study Development of an Investment Decision Tool for Biogas Production from Agricultural Waste (Kerellas S., Boukis I., Kontopoulus G., 2009), establishing a facility involves also high costs for the development the facility: research, project development and necessary permits. These costs make up about 11 % of the total cost. The investment payback period could reach even nine years and it depends on the total cost, the investment needed for the establishment of a facility and the market price on the final product (Kerellas S., Boukis I., Kontopoulus G., 2009; Amigun B., Blottnitz H., 2010; Rubins M., 2014).

In the opinion of the authors, three most important renewable energy production effects are as follows.

1) A lower CO_2 and other GHG emission level, and a smaller negative impact of manure and biological waste on the environment. For example, if biogas is produced from manure or biological waste, these inputs are processed and do not create threats to the environment.
2) A smaller amount of imported energy and a higher proportion of RES in the total energy balance. The expansion of renewable energy production allows reducing the imports of electricity and gas. It is of great importance for small countries such as Latvia from the perspective of sustainable development.
3) Regional development – increases in incomes and the number of jobs in rural areas. For example, biogas production is an opportunity for farms to earn extra revenue. Large biogas, biofuel or other renewable energy facilities can promote the creation of jobs in rural areas. If renewable energy is produced from biomass, it contributes to agricultural production and the use of the unfarmed area (European Parliament, 2016; Energetikas attistibas pamatnostadnes..., 2016; Rubins M., 2014).

In Latvia, electricity production from RES is an important industry. In 2015, hydropower plants (HPP) comprised the highest proportion of

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electricity production, of which 98.2 % were HPPs with an electric capacity of more than 10 megawatts per hour (MW h^{-1}). In the period 2011-2015, the installed electric capacity of HPPs rose by 1 % or 13 MW h^{-1} (Table 1), which was caused by a 12 % increase in the segment of HPPs with a capacity from 1 to 10 MW h^{-1}. In 2015 compared with 2011, the proportion of HPPs in the distribution of installed electric capacity of RES power plants for Latvia declined by 7 %, which indicated that the installed electric capacity of other kinds of RES power plants increased at a faster pace. In the period of analysis, the greatest relative increase was observed for biomass cogeneration and power plants, 1220 %, or 61 MW h^{-1}, as the capacity of biomass cogeneration and power plants comprised only 5 MW h^{-1} (0.3 % of the total capacity of RES power plants) in 2011. The second fastest increase was observed for biogas cogeneration facilities – 140 % or 35 MW h^{-1}. A considerable increase in generation capacity was reported for also wind power plants (92 % or 32 MW h^{-1}). In 2011, the capacity of biogas, wind and biomass power and cogeneration plants accounted for a range of only 0.3 % to 2.2 %, while in 2015 it made up more than 3 % in each position. This may be explained by the fact that the pace of increase in the capacity of biogas and biomass power and cogeneration plants was faster than that for wind power plants. The fast increase pace in electrical capacity may be explained by the RES policy implemented in Latvia, i.e. the measures introduced: mandatory procurement and guaranteed payment for the electric capacity installed. In the period 2011-2015, an increase in the total electric capacity of RES power plants accounted for 9 % or 142 MW h^{-1}. In the period of analysis, the total relative increase was not greater due to the high proportion of HPPs and the small relative increase in the capacity of HPPs. The construction of new large HPPs is not planed in Latvia. For this reason, any increase in electric capacity is possible if increasing the capacity of biomass, wind and biogas RES plants.

Table 1

Electric capacity of renewable energy power plants in Latvia in 2011-2015, MW h^{-1}

Kind of renewable energy plants	2011	2012	2013	2014	2015	Δ from base year, %	Distribution, %	
							2011	2015
Hydro power plants	1576	1576	1589	1590	1589	1	96.0	89.0
Wind power plants	36	59	67	69	69	92	2.2	3.9
Biomass cogeneration and power plants	5	23	55	63	66	1220	0.3	3.7
Biogas cogeneration plants	25	43	53	58	60	140	1.5	3.4
Total	1642	1701	1764	1780	1784	9	100	100

Source: authors' calculations based on the Central Statistical Bureau, 2016a

The amount of electricity produced greatly depends on the performance of the HPPs on the River Daugava, which generated 926 GW or 32 % less electricity in 2014 compared with 2013. This was determined by an untypically low river water flow rate (Latvenergo, 2014). In 2015, the output of electricity decreased even more, and the total decrease equalled 36 % (Table 2). Therefore, the HPPs accounted for a 12 % lower proportion in the distribution of electricity generated from RES, while the situation could change in water rich years. In 2015, the proportion of electricity generated by biogas cogeneration plants and biomass cogeneration and power plants was higher (14.4 %) than that for wind power plants (3.6 %). Since the values of installed capacity of cogeneration and power plants for both kinds of renewable sources are similar, one can find that wind power plants perform less efficiently, as they generate only a small proportion of the

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electricity produced. If excluding the HPPs, an increase in the amount of electricity generated by the other RES power plants was 385 % in the period 2011-2015, which was due to a considerable 2808 % increase in the amount of electricity produced by biomass cogeneration and power plants. The increase was caused by national and EU financial support for RES. In the period 2011-2015, the total output of electricity decreased by 16 % owing to the introduction of the subsidised electricity tax (SET), as support for cogeneration electricity was reduced, and it was economically efficient to decrease electricity generation at the Riga Thermal Power Stations (Latvenergo, 2014). In the distribution of total electricity output, RES made up 51 % in 2014 and, on average, 48 % in the period 2011-2014, which proved the large role of the RES in Latvia.

Table 2

Electricity output from renewables in Latvia in 2011-2015

Kind of renewable energy plants	2011 GW	2012 GW	2013 GW	2014 GW	2015 GW	Δ from base year, %	Arith-metic mean	*Distribution, %*	
								2011	*2015*
Hydro power plants	2887	3707	2912	1993	1860	-36	2672	93.9	*82.0*
Wind power plants	71	114	120	141	147	107	118	2.3	*3.6*
Biomass cogeneration and power plants	13	65	215	319	378	2808	198	0.4	*6.1*
Biogas cogeneration plants	105	223	288	350	392	273	272	3.4	*8.3*
Total power output from RES	3076	4109	3535	2803	2777	-10	3260	100.0	*100.0*
Total output from RES, HPPs excluded	189	402	623	810	917	385	588	-	-
Total output	6 095	6 168	6 209	5 140	**	-16*	5903	-	-
Annual electricity consumption	6191	6848	6576	6583	6461	4	6532	-	-
Power output from RES as a % of total power consumption	*44.71*	*44.89*	*48.75*	*51.09*	**	*14**	*48*	-	-

**** change (2014/2011); ** No data***
Source: authors' calculations based on the Central Statistical Bureau, 2016a, 2016b

2. Most important developments in the RES policy of Latvia

In 2016, the Cabinet of Ministers of the Republic of Latvia approved the Guidelines for Energy Sector Development 2016-2020 that determine the policy made by the government of Latvia, the key principles and objectives of the policy and priorities for the energy sector in the period 2016-2020 (Ministry of Economics, 2016a). The situation has changed in the strategic planning of the power sector in Latvia and the Baltics (Energetikas attistibas pamatnostadnes..., 2016).

The policy document defines the key objective of the energy policy made in Latvia – to enhance the competitiveness of the national economy, along with implementing government policies on other industries through contributing to secure supplies, the formation of prices on energy resources and energy under the free market and competition as well as sustainable energy production and consumption (Energetikas attistibas pamatnostadnes..., 2016; Saeima, 2012). To contribute to the sustainability of the energy sector, it is envisaged implementing activities aimed at raising the proportion of "green energy", reducing GHG emissions and contributing to efficient energy use, which involves the following activities – revising and designing support mechanisms for RES use. The National Development Plan of Latvia for 2014-2020 has set an objective to increase the proportion of RES in the total consumption of energy, focusing on competitive energy prices. The policy objectives – increasing the proportion of RES and achieving a competitive energy price – could be contradictory; therefore, the government has to find a solution to the problem, i.e. how to increase support for RES without contribution to higher energy prices for producers (Saeima, 2012).

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The Guidelines for Energy Sector Development 2016-2020 (2016) set the following RES-related targets to be achieved in 2020: the proportion of energy from the RES in the gross final energy consumption has to be 40 % (37.1 % in 2013); the proportion of energy from the RES in the gross final energy consumption by transport has to be 10 % (3.1 % in 2013). The Sustainable Development Strategy of Latvia until 2030 (2010) sets a target to provide half of the total final energy consumption in the country from RES in 2030. The strategy stresses that if using RES, extra opportunities for growth would be created in the fields of regional development, local entrepreneurship and employment, while increasing energy security and improving the import-export balance.

According to the Guidelines for Energy Sector Development 2016-2020 (2016), the next challenge regarding RES for Latvia is to reform the support system (exemption from the electricity tax for RES and cogeneration, reduced excise tax rates for fuels with high biofuel contents), so that it is oriented not only towards achieving the RES target but also reducing the negative effect on economic growth and household incomes.

In the opinion of the authors, the potential effects on biogas producers as well as the fact whether the expected changes could be predicted in advance have to be seriously assessed before making any amendments in the legislation. It would be advised to shift to the feed-in-premium system for the purpose of fostering biogas production in Latvia and to allocate the financial support for RES for the purpose of efficient use of thermal energy generated by biogas facilities to effectively control the effects of financial support on electricity tariffs for final consumers. This would reduce the dependence of Latvia on imported energy and contribute to environmental protection. After considering research studies and discussions, the government has to introduce a support system (feed-in tariffs) for producers that is designed according to inputs used and their kind and the amount of thermal energy used, so that the producers can make adequate profits (when making new contracts); the tariffs have to be set based on in-depth research studies on RES production profitability in Latvia.

The *Subsidised Electricity Tax Law* (2013) stipulates that the SET is applied to taxable revenues made from 1 January 2014 to 31 December 2017, yet the Ministry of Economics plans to prolong the tax period.

RES producers were not able to predict the introduction of the SET when made their decisions on starting up their business; it also stopped their plans to further develop their facilities. A number of small biogas producers might face serious profitability problems owing to the SET, as they were not informed about the mentioned tax before making a decision on starting up their business (Rubins M., 2014). For this reason, in the authors' opinion, the SET has to be abolished or at least the producers having the lowest profitability have to be immediately exempted from the tax. The sustainability of RES in Latvia is going to be ensured if the government finds ways how to limit the support effect on the price on electricity for final consumers. Otherwise, it has been proved one more time that entrepreneurs do not have a predicTable legal and business environment in Latvia.

Besides, it is envisaged that Latvia will *differentiate the mandatory procurement component (MPC) for electricity* in 2018. In 2016, the MPC depended on the amount and price of electricity purchased within the scope of mandatory procurement in the previous year. The MPC size is affected by the natural gas price, the electricity price at the exchange and electricity consumption. The higher the natural gas price, the greater the MPC size; however, the higher the electricity price and/or electricity

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consumption, the smaller the MPC size (Ministry of Economics, 2016b, 2016c, 2016d).

In the authors' opinion, the MPC size is very important for RES producers, as an economically reasonable MPC ensures a fair price for final consumers. This would create a more positive attitude of the public to RES and decrease pressure to limit the further expansion of the RES in Latvia. It is expected that owing to the current energy policy, the maximum MPC is going to be reached in 2017. However, if granting new permits for electricity production from RES is not restarted, the MPC size is going to decrease from 2018 onwards. In 2008, the calculated MPC was equal to 8.0 EUR MWh^{-1}, while from 1 April 2010 it was 16.3 EUR MWh^{-1}. The MPC increased to 1.75 EUR MWh^{-1} in 2012 and to 26.9 EUR MWh^{-1} in 2013. Compared with 2008 when the MPC was introduced, it increased by 1.89 EUR MWh^{-1} or 3.3 times (Energetikas attistibas pamatnostadnes..., 2016). In view of the declining competitiveness of producers under high electricity prices and of interests of poor individuals, the Cabinet accepted a conceptual report "Complex Measures for Electricity Market Development" (2015), which set the MPC at 26.79 EUR MWh^{-1} for the period until 2019. This decision has to avoid an electricity price hike due to the MPC. In order for RES producers to receive a premium on top of the electricity price, which is calculated based on feed-in tariffs, it was decided to compensate for the gap between the real MPC and the one approved by the Cabinet from SET and value added tax revenues and Latvenergo dividends. In addition, amendments to the legal acts regulating the MPC were made in 2015 to prolong the moratorium beyond 1 January 2016, during which the Ministry of Economics (MoE) would not grant new rights to receive national support for RES production (Energetikas attistibas pamatnostadnes... 2016; Ministry of Economics, 2016e).

However, in November 2016, the Saeima of the Republic of Latvia made a decision to review the MPC system. Accordingly, the MPC at a rate of 26.79 EUR MWh^{-1} is going to remain until the end of 2017 instead of until 2019 as it was decided earlier. In accordance with the 2016 amendments to the Electricity Market Law, which will be in force from 1 September 2017, the costs that are comprised of payments for the electric capacity installed, are covered by all final electricity consumers in Latvia, and these costs are divided between the power transmission and consumption groups in proportion to the fixed part of revenue from the system's services, thereby compensating the public electricity trader for feed-in expenditures. The new MPC rate will be in force from 1 January 2018 (Grozijumi elektroenergijas tirgus..., 2016; Elektroenergijas tirgus likums, 2005). This means that in 2018 the MPC is divided into two parts based on: 1) the amount of electricity consumed; 2) the connection capacity requested. The Ministry of Economics believes that the reform will ensure a competitive electricity price for energy-intensive enterprises in the European region, which stimulates the competitiveness of the manufacturing sector and reduces the MPC effect on the variable costs of manufacturing enterprises (Ministry of Economics, 2016d). In Latvia, according to the MoE data, the MPC rate paid by enterprises is the fourth highest in the EU. For this reason, the MPC rate has to be differentiated, so that a lower MPC rate is paid by the enterprises and households that have an efficient power supply (Ministry of Economics, 2016b).

According to the estimates made by the MoE, the MPC rate for households is going to decrease if the consumption of electricity from a single-phase supply is less than 75 kWh (kilowatt-hours) per month. Protected consumers (poor families, large families or families who care for children with disabilities, persons with group I

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disabilities who use electricity for their own needs), which consume less than 75 kWh, are compensated for an increase in the electricity price (the increase of the MPC rate) (Ministry of Economics, 2016b, 2016f). A fee for a single-phase connection is set at EUR 1.28, while for a three-phase, 20 A (amperes), connection it is EUR 4.78; so, the difference in the fee for households having a single-phase and a three-phase, 20 A, connection equals EUR 3.50 regardless of the amount consumed. If 100 kWh are consumed, an electricity bill decreases by EUR 0.43.

Table 3

Changes in monthly bills for households after the differentiation of the mandatory procurement component in Latvia, EUR, VAT excluded

Consumption, kWh per month	0	50	75	280	600
Single-phase power	1.28	0.43	0.00	-3.50	-8.96
Three-phase power	4.78	3.93	3.50	0.00	-5.46

Source: Ministry of Economics, 2016

In the segment of enterprises, the MPC decreases if connection efficiency (real consumption to maximum consumption for the particular connection) is 13 % for an 0.4 kV power connection and 16 % for a connection starting with 6 kV. The MoE emphasises that manufacturing enterprises will get more competitive by means of this reform. In the authors' opinion, the current MPC mechanism is fair, as the MPC is added to the cost of a kilowatt-hour; therefore, everyone has an opportunity to use efficient and energy-saving electrical appliances and to reduce the MPC effect in this way. By setting a higher MPC rate for households saving on electricity, the government actually encourages consumers to consume more electricity. This could hinder households from using power-saving electrical appliances, as such appliances are more expensive than less energy-efficient ones. On the contrary, the government should conduct an extensive campaign aimed at encouraging energy-saving. The reform should be also simulated to identify the effects on the amount of electricity consumed by households. A potential increase in electricity consumption will reduce the positive RES effects: lower energy dependence and environmental protection.

According to the Latvian Agricultural Organisation Cooperation Council, farmers do not comprehend why the amendments to the law had to be passed in a hurry. There are serious concerns that the decision was not thought out enough, and it can result in an inadequate electricity price, which is uncompetitive in Europe, for small and medium producers in rural areas in future (Leta, 2016).

In the authors' opinion, the MPC reform can provide a partly positive economic effect, as production costs will decrease for energy-intensive enterprises. The idea to differentiate the MPC rate for enterprises according to connection efficiency is supportable.

Further calculations have to be done – to identify the MPC effect on the competitiveness of large enterprises as well as on small enterprises, especially agricultural ones. If the MPC reform makes some industries more competitive, whereas other ones face considerable competitiveness problems, the reform is not the right solution. The government should not foster the development of energy-intensive industries, as it can increase the country's dependence on energy imports. A better idea would be to reduce the MPC rate for the enterprises meeting certain criteria, e.g. using equipment that is highly energy-efficient or employing a certain number of employees with special needs and poor persons. This would contribute to socially responsible entrepreneurship in Latvia.

The Ministry of Economics has submitted an EU *support programme for improving energy efficiency* and using RES in centralised heat supply in 2017 and onwards for approval. The

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total budget of the support programme is EUR 53 million. Heat supply enterprises are eligible for the support programme, and the aid intensity is expected to be up to 40 %. The available amount of public funding per project submitter may reach EUR 8 million. The programme expects to achieve the following results: modernisation of heat-producing facilities running on renewable energy sources and an increase in the capacity of the facilities for centralised heat supply to 70 MW; an additional capacity of the facilities running on renewable energy sources – 28 MW; an estimated annual reduction in GHG emissions – 30 454 CO_2 equivalent tonnes (Ministry of Economics, 2016f).

3. EU RES policy and the legal regulation after 2020

The EU has the leading role in the production of renewable energy sources. Of the total number of registered patents on renewable energy sources, 40 % belongs to the EU. In 2012, 44 % of the global output of electricity from RES (hydropower excluded) was associated with the EU Member States, and this industry employed 1.2 million people (European Parliament, 2016).

Every EU Member State is responsible for designing its national renewable energy action plans. The information of the action plans allows concluding that the amount of electricity generated from RES in 2020 will be more than two times greater than in 2005 (Scarlat N., et al., 2015). In the result of a targeted policy of the EU, the output of electricity from RES increased by 15 % in the period 2012-2015 and could increase by 34 % in the period 2015-2020 (Table 4). It proves the effectiveness of the current RES policy implemented in the EU, as the output of electricity from the RES increases at a fast pace.

Table 4

Electricity production from renewable energy sources in the EU in 2011-2015, PJ (petajoules)

Kind of energy	2012	Expected output		Distribution, %			Δ from base year (2015/2012), %	Δ from base year (2020/2015), %
		2015	2020	2012	2015	2020		
Hydro	1182	1278	1331	17.8	16.7	13.0	8	4
Geothermal	46	83	150	0.7	1.1	1.5	80	81
Solar	336	347	634	5.1	4.5	6.2	3	83
Marine	2	3	23	0.0	0.0	0.2	50	667
Wind	715	1109	1760	10.8	14.5	17.2	55	59
Heat pumps	288	305	514	4.3	4.0	5.0	56	69
Bioenergy	4057	4510	5841	61.3	59.2	56.9	11	30
Total RES	6626	7635	10253	100.0	100.0	100.0	15	34

Source: authors' calculations based on Scarlat N., Dellemand J.F. et al., 2015

It is envisaged that by 2020 the proportion of HPPs in the distribution of output of electricity generated from RES is going to decrease (from 18 % to 13 %), while the proportion of wind power plants will sharply increase (by 6.4 %). It is also envisaged that the proportion of conventional bioenergy will decrease from 61 % in 2012 to 57 % in 2020. It is expected that the proportion of geothermal, solar, heat pump and marine energy in the distribution of output of electricity generated from RES will increase as well. It is envisaged that in the period 2012-2020, the amount of electricity from marine power will sharply increase (by 667 %). A considerable increase in the output of electricity from solar energy (83 %) and geothermal (81 %) is expected as well.

The European Parliament emphasises that it is necessary to give investors a clear vision of the RES policy in the EU after 2020. According to the European Commission's (EC) communication "Energy Roadmap 2050" (2011), the proportion of energy from RES has to be at least 30 % by 2030. The EC also points out that if no corrective measures are taken, the consumption of energy from RES will decline after 2020. After the EC published the Green Paper "A 2030 Framework for Climate and Energy Policies" (2013) in March

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2013, the EC, contrary to the previously expressed position, proposed setting no new targets for every Member State individually in its 2014 communication "A Policy Framework for Climate and Energy in the Period from 2020 to 2030" (2014); instead, a target was set at EU level – 27 % of the total energy consumption would have to be provided from renewables.

The EU stresses that achieving the targets set for every Member State with regard to GHG emissions will contribute to the fast development of the energy sector. The change in the course is intensively discussed with the European Council and the European Parliament. A potential change or softening of the policy may be explained by the growing criticism of RES, e.g. biogas and bioenergy. For example, the biogas and bioenergy industries are criticised for their contribution to food price increases that, in their turn, lead to the deterioration of food quality. A number of research investigations concluded that biogas contributed to land rent increases (Guenther-Lubbers W., et al., 2016). In the authors' opinion, such a conclusion is not correct because biogas or any other kind of RES are not to blame for food price or land rent increases – the problem is the inability of policy makers to find a way how to promote the development of the RES and avoid the negative effects. For example, one can set a higher feed-in tariff on electricity generated from manure, biological waste or biomass acquired from an area that has not been farmed for 5 or 10 years. In a similar way, one can rebut criticism of the other kinds of RES, e.g. increases in electricity price for final consumers if a Member State introduced feed-in premiums or tariffs.

In the opinion of the authors: 1) electricity tariffs have to be made economically reasonable by diversifying purchase prices on biogas produced from various inputs, thereby determining an adequate profit as well as allowing a higher profit from the inputs making positive impacts on the environment, e.g. manure, biological waste and sewage; 2) an optimum support system has to be implemented. For example, feed-in premiums that allow controlling the effects of support for the industry on the final electricity tariff. The government has to set the maximum amount of financial support. In this way, one can calculate the size of a premium per kilowatt-hour of electricity under such a support system. Electricity producers that have applied for financial support schemes are eligible for the premium, yet the financial support is paid to the producers that first applied for it (Denina A., 2008). One can conclude that the current EU RES support policy is effective, and it is very important that the EU continues implementing it and sets an ambitious target for next years, providing particular sources of finance for this purpose not only at Member State level but also at EU level – through establishing a common budget –, which would allow continuing co-funding the construction of new RES facilities in Latvia and other EU Member States. A new target should be set for every Member State and financial measures should be taken to increase the proportion of RES.

Conclusions, proposals, recommendations

1) RES are important for the economy of Latvia, as their proportion in the total output of electricity was equal to 51 % in 2014 and on average 48 % in the period 2011-2014. If excluding the HPPs, an increase in the amount of electricity generated by the other RES power plants was 385 % in the period 2011-2015, which was due to a considerable 2808 % increase in the amount of electricity produced by biomass cogeneration and power plants. The increase was caused by national and EU financial support for RES.
2) Despite the positive aspects of the use of RES – energy efficiency, environmental protection and regional growth –, the government of Latvia seeks to limit electricity production

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from the RES through setting various restrictions: a) a higher MPC rate for households that save on electricity; b) the SET that creates an unpredicTable business environment. This means that the hypothesis put forward has been proved.

3) The further development of RES is going to be determined by the EU policy implemented after 2020, and it is very important that the EU continues the current policy and sets an ambitious target for next years, providing particular sources of finance for this purpose not only at Member State level but also at EU level – through establishing a common budget –, which would allow continuing co-funding the construction of new RES facilities in Latvia and other EU Member States as well as establishing a support system that allows controlling the effects of support for this industry on the final electricity tariff.

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